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RED RIVER OF THE NORTH BASIN FLOOD, APRIL–JUNE 1950

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ABSTRACT

One of the worst floods of record in the valley of the Red River of the North occurred during the spring of 1950. In this report on the flood, the general topographical and climatological characteristics of the basin are described, the meteorological conditions contributing to the flood are discussed, and data on the flood stages and duration are presented. Comparative data for other floods in the valley also are presented and the worst of these, the flood of 1897, is discussed.

CONTENTS

INTRODUCTION

Flooding in the Red River Valley of the North during the spring of 1950 was one of the worst floods of record in the valley with damages estimated at 33 million dollars. The crests during April were the highest since 1897 at Grand Forks, N. Dak., and the highest on record at Pembina, N. Dak. The crests during May from below Grand Forks, N. Dak., to the Canadian border were generally the highest in the past 100 years.

Floods in the Red River of the North Basin occur primarily during the spring season (April and May) and are caused chiefly by melting snow. Ice conditions, particularly on the northward flowing streams, increase flood crests and occasionally cause extremely high flood stages due to ice jams. Early freeze-up in the fall before snow occurs is also a contributing factor in producing flood conditions in the spring. Major rain storms of sufficient magnitude to cause more than local flooding are extremely rare. Considerably higher crests result along the tributaries and the main stem of the river if the snow melt is accompanied by a period of prolonged heavy rains. In the lower portion of a large drainage system extreme floods depend upon the relative times of occurrence of high water in the separate portions of contributory sub-areas of the system. If the floods from the different tributaries meet simultaneously in the main stream, an extreme flood results; but if they arrive consecutively, the major part of the water from one tributary may have passed by before that from the next tributary arrives and the same total quantity of water being distributed through a longer time causes no unusual heights.

The purpose of this paper is to describe how the contributing factors combined to produce the flood of April–June 1950. First, as a background for the discussion of these factors, of the resulting flood, and of previous floods in the valley, the general topography and climatology of the basin are described.

DESCRIPTION OF BASIN

The Red River of the North rises in the lake region of west-central Minnesota, not far from the headwaters of the Mississippi River. (See fig. 1.) It is formed by the confluence of the Ottertail and Bois de Sioux Rivers and flows 400 miles in a northerly direction between the states of Minnesota and North Dakota to the interna-

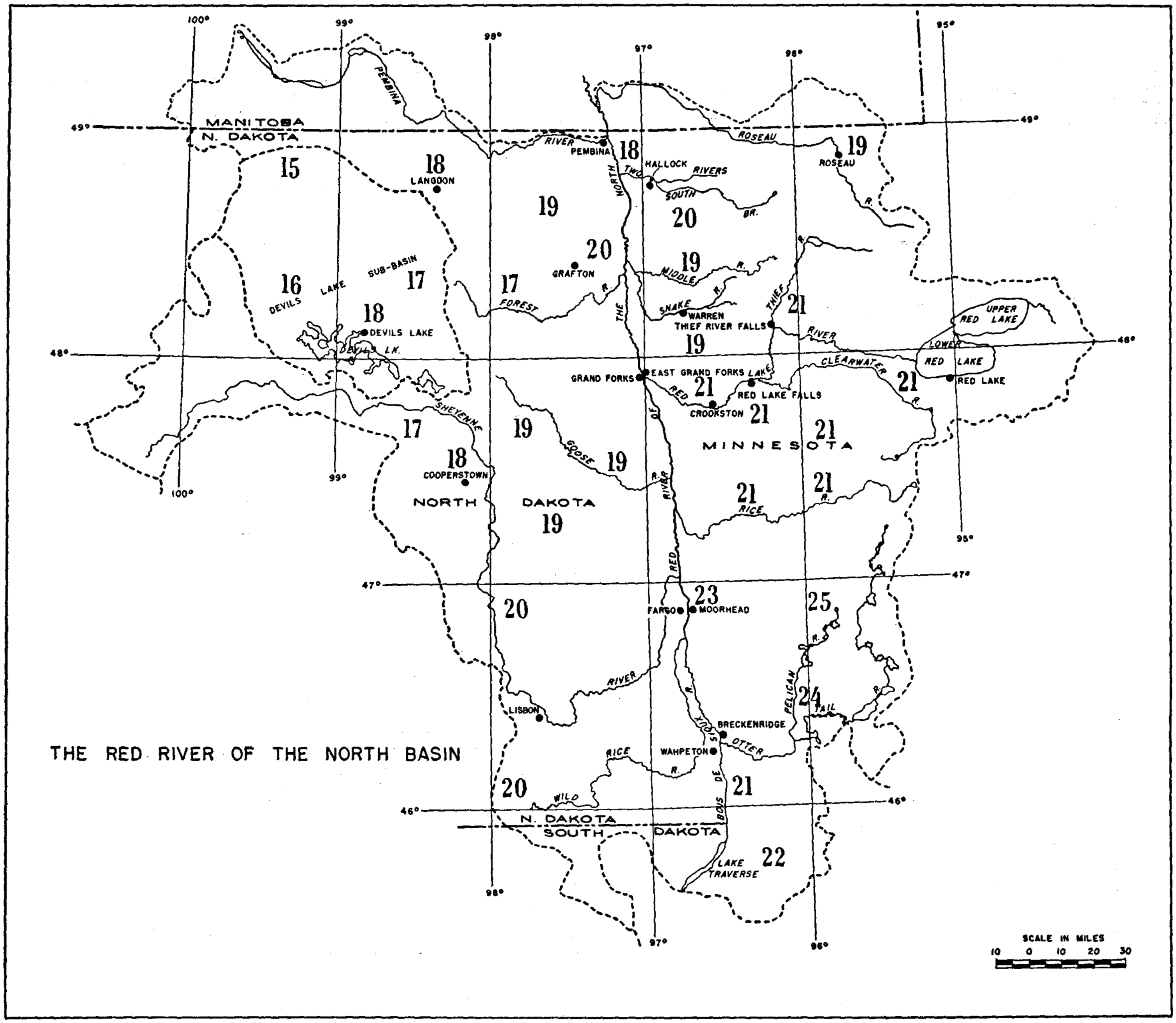

FIGURE 1.—Map showing principal streams in the basin of the Red River of the North. The plotted numbers are average annual precipitation (inches).

tional boundary. In Canada it flows generally northeastward about 155 miles into Lake Winnipeg which empties into the Hudson Bay by means of the Nelson River. The slope of the river varies from about 1.3 feet per mile near the source to 0.2 foot per mile near the Canadian boundary and averages about 0.5 foot per mile. In Canada the fall averages about 5 feet per mile. It is navigable along the greater portion of its course.

Several tributaries flow into the Red River of the North from North Dakota and Minnesota. The most important of these are the Sheyenne and the Pembina in North Dakota, the latter of which rises in the province of Manitoba, Canada.

The Red River of the North at the international boundary drains an area of about 40,200 square miles. Of this area, 21,000 square miles are in North Dakota, 16,400 in Minnesota, 800 in South Dakota, and 2,000 in Canada. The greater part of this Canadian area is drained southeastward into the United States by the Pembina River which joins the Red River of the North south of the Canadian border. Included in the total drainage area are 3,940 square miles comprising the closed Devils Lake subbasin in North Dakota.

The main river valley is very flat and varies in width from about 50 miles in the southern half to about 150 miles in the middle of the basin. The greater portion of the basin has been submerged twice beneath the sea and was covered with an extensive glacial drift which left an immense lake called Lake Agassiz that had an outlet to the Mississippi River. The Lakes of Manitoba are the remains of this vast lake. Streams within the valley have flat slopes and channel capacities which are generally inadequate to carry flood flows. An extensive system of drainage ditches has been constructed in North Dakota and Minnesota to assist nature in carrying away the water.

CLIMATOLOGY OF BASIN

The Red River of the North Basin lies in a belt of prevailing westerly winds where the major rainfall occurs during the late spring and summer, with the greatest amount occurring in June. Approximately 60 percent of the total annual precipitation shown in figure 1 occurs during the growing season which has an average length of 100 to 140 days. Much of the summer precipitation, which frequently is associated with thunderstorms, is due to the forced lifting of warm moist air from the Gulf of Mexico over a wedge of cooler polar air. The winter months, December through February, are normally the driest in the year; approximately 15 percent of the total annual precipitation occurs during this period in the form of snow and accumulates to considerable depths in the valleys and wooded areas. The average annual precipitation varies from about 24 inches in the headwaters to about 17 inches in the north part (fig. 1).

The mean annual temperature of the Red River of the North Basin varies from about 43° F. in the southern portion to 36° F. in the northern portion. Temperature extremes of 118° and −54° have been recorded.

The total annual runoff in this part of the United States is very small, averaging about 3 to 4 inches per year from the Minnesota side of the Red River drainage and less than 1 inch from the Dakota side.

WEATHER CONTRIBUTING TO FLOOD OF 1950

WINTER AND SPRING WEATHER

The weather conditions during the winter and spring of 1950 in the Red River of the North Valley were favorable for the development of severe flooding in several respects. The over-all combination of conditions permitted the heavy accumulation of snowfall during the winter and late melting in conjunction with heavy precipitation in the spring. Early freeze-up in the fall before snow occurs is often a contributing factor to produce flood conditions in the spring but during the fall of 1949 the freeze-up was not early and the snow that fell during November 1949 melted by the end of the month. The cold weather in December, however, caused deep frost penetration in the ground before new snow occurred so the effect was similar to an early freeze-up. The winter and spring months were extremely cold, averaging several degrees below normal as shown in figure 2. March 1950

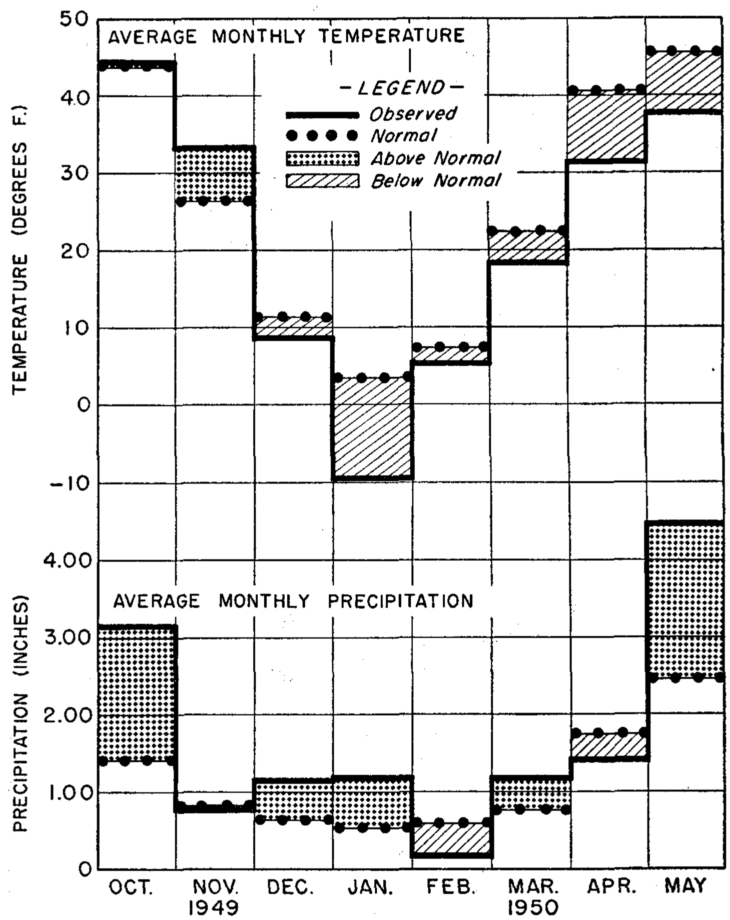

FIGURE 2.—Average monthly temperatures and average monthly total precipitation over the Red River of the North Basin from October 1949 through May 1950.

was the fourth consecutive month with below-normal temperature in North Dakota. Precipitation averaged considerably above normal during December 1949, January, March, and May 1950, with unusually heavy amounts in January and March (fig. 2). Although precipitation averaged below normal during February, the temperatures were abnormally low so there was little decrease in the heavy snow cover that was on the ground on February 1, 1950. A snow survey by the U. S. Army Engineers from February 12–18 showed the water equivalent of the snow cover in the upper portion of the basin during that period to be less than an inch, and in the northern portion from 2 to 3 inches. Warm weather during the first 6 days of March melted much of the snow cover over the south and central portions of the basin. Severe weather with abnormally cold temperatures occurred during the remainder of March. The severe weather was accompanied by additional snow in northeastern North Dakota and northwestern Minnesota. Figures 3, 4, and 5 show the amount of snow on the ground on February 1, March 1, and April 1, 1950. Figures 6 and 7 show isolines of percentage of normal precipitation over the Red River of the North Basin from October 1, 1949, to March 31, 1950, and from April 1, 1950, to May 31, 1950.

CRITICAL PERIOD WEATHER

In Minnesota April 1950 was the coldest April since the beginning of State-wide records in 1891, and the average snowfall for the State was the second greatest of record for April. In North Dakota it was the coldest April since 1920, and nearly three times the normal snowfall was recorded This is the greatest amount of snow recorded in April since records were begun in 1892.

As pointed out by Winston [1], the below-normal temperatures of April were directly associated with the general persistence during March and April of a basic circulation pattern over North America that resulted in repeated outbreaks of cold Canadian polar air into central and eastern United States. Winston further pointed out that the above-normal snowfall in the Dakotas was caused primarily by Pacific maritime air overrunning the cold polar domes covering the area. It is of interest to examine some of the day-to-day weather developments associated with this general circulation pattern, for they seem to indicate that some important contributions to the precipitation also were made by occasional influxes of moist Gulf air overrunning the polar domes.

As April 1950 opened, the valley of the Red River of the North was dominated by a polar High centered over

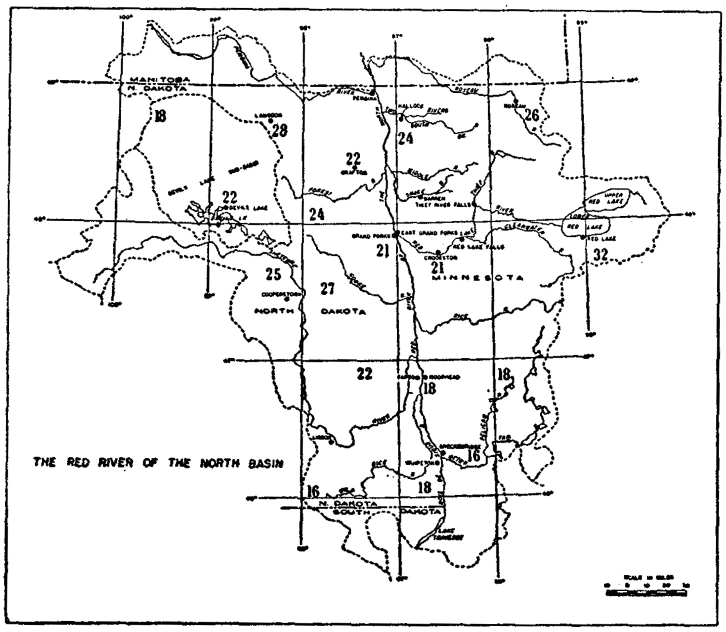

FIGURE 3.—Depth of snow on ground (inches), February 1, 1950.

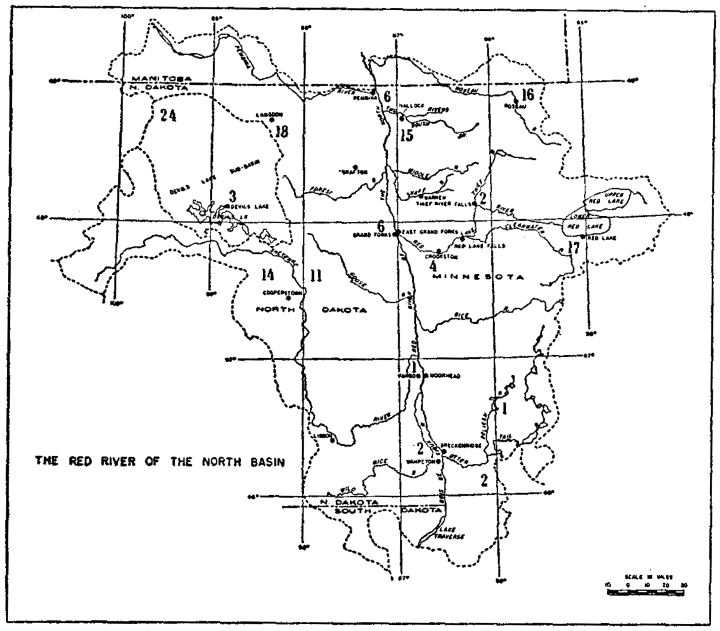

FIGURE 5.—Depth of snow on ground (inches), April 1, 1950.

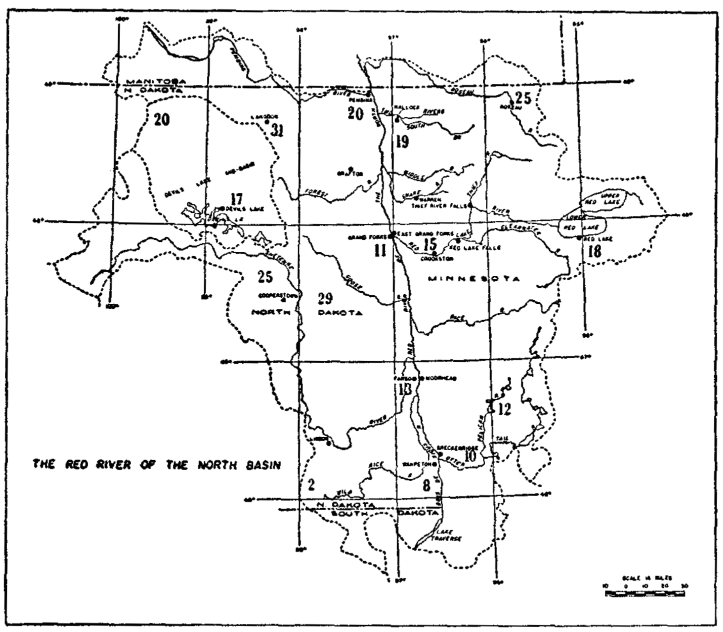

FIGURE 4.—Depth of snow on ground (inches), March 1, 1950.

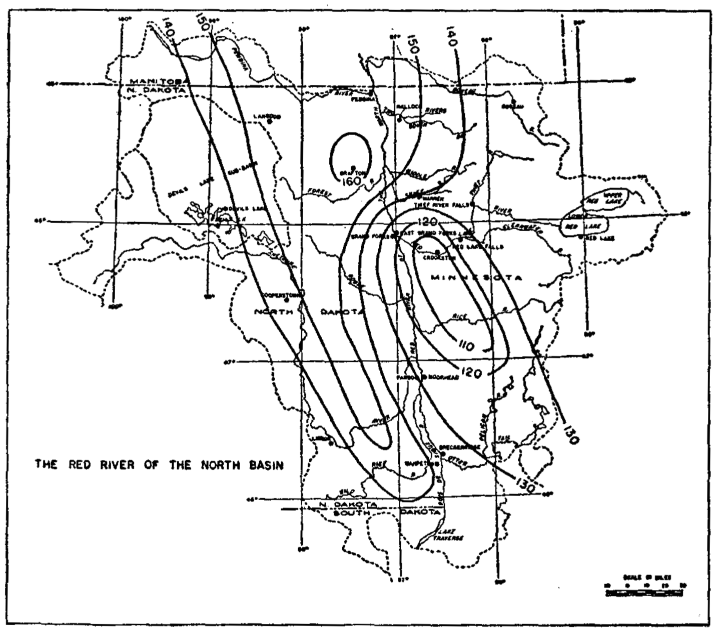

FIGURE 6.—Isolines of percentage of normal precipitation from October 1, 1949, to March 31, 1950.

western South Dakota. A deepening cyclonic system, however, was moving in on the west coast, just north of the Canadian border. The system moved rapidly east-southeastward, producing precipitation (primarily in the form of snow) over the Red River Basin, and causing a dip in temperatures (fig. 8). As the Low moved off east of the Basin, it was replaced by a polar High which, by afternoon of April 4, dominated the circulation of the United States from the west coast to the Mississippi.

A mass of polar air, building up in northwestern Canada at this time, moved slowly east-southeastward in the next 24 hours. By afternoon of the 7th the forward edge of the polar air mass had swept past the Red River Basin. Although the center of the High remained in Canada, the strong circulation around it poured cold air into North Dakota and Minnesota and sent temperatures plunging (fig. 8).

The High progressed eastward and was centered east of Hudson Bay on the 9th. At this time a front, extending from a Low in southern Wyoming, stretched eastward marking the southern boundary of the polar air mass. North of the front a huge area of precipitation from Ohio to the Dakotas was created as warm moist air from the Gulf of Mexico moved northward and was lifted over the cold air mass. Precipitation in the form of freezing rain and snow continued in most of the Red River area through the 11th when the Low was finally replaced by a wedge of high pressure.

The cold air of the High dominated the Red River area through April 14. In the following 2 days, two weak frontal systems from the Pacific crossed the Basin area bringing in mild Pacific air. Skies cleared and temperatures rose sharply (fig. 8). Still another Pacific system, stronger and slower moving, crossed the North Dakota-Minnesota region on the 17th, releasing some light precipitation over the Red River Basin. The influx of warm Pacific air was renewed, again raising temperatures.

The passage of a complex frontal system on April 22, however, was followed by a southward push of a polar High from Canada. The Bermuda High at this time extended to great heights and was displaced westward so that it intruded over the southeastern part of the country. As a result, the polar High was halted midway in its progress southward. On the 24th, a small dynamic Low developed in the cold air over North Dakota and moved eastward while another Low developed in the Oklahoma-Kansas area and moved slowly northeastward, deepening as it went (fig. 9). By the 25th the two Lows had combined (fig. 10). The strong circulation created by these Lows pulled warm, moist air northward from the Gulf. This air was then lifted over the denser polar air dominating the northeastern half of the country and caused widespread precipitation.

The Bermuda High slowly gave way on the 25th, and the deep Low pulled polar air down over North Dakota and Minnesota (fig. 10). At many stations in the Red River area maximum temperatures for the 25–27th were at the freezing level or lower. Minimum temperatures at this time were as low as 17° F. Devils Lake, N. Dak., reported 6.5 inches of snow on the 24th, and Red Lake Indian Agency, Minn., reported 6.9 inches on the 25th.

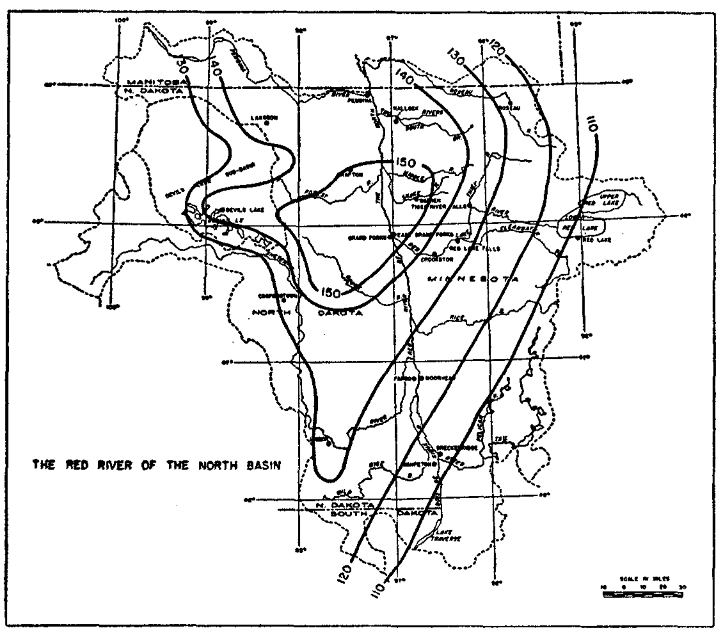

FIGURE 7.—Isolines of percentage of normal precipitation from April 1, 1950, to May 31, 1950.

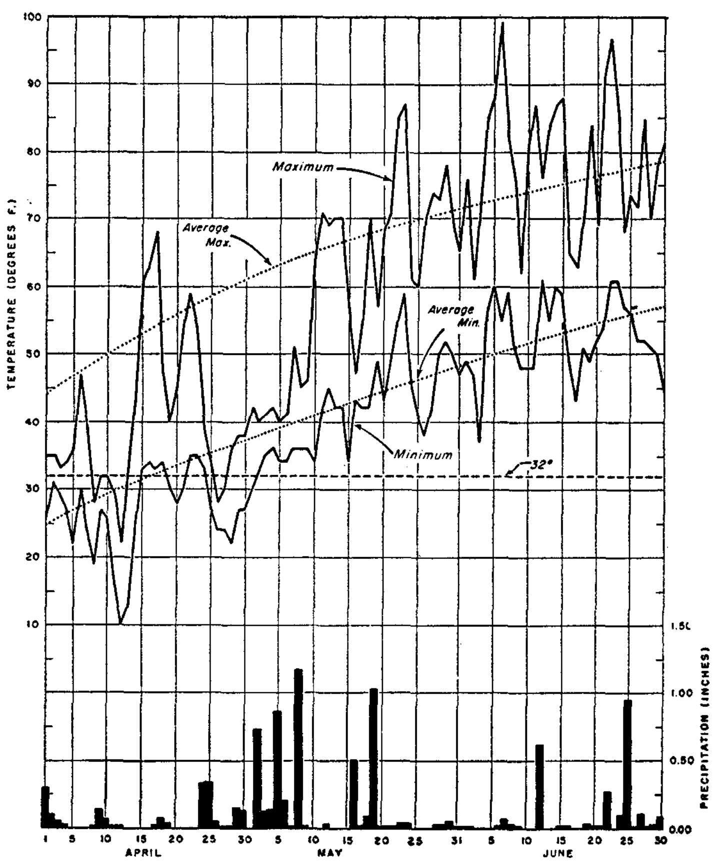

FIGURE 8.—Precipitation and temperature, April to June 1950, Fargo, North Dakota.

Pierce and Norton [2] have given a detailed discussion of these critical meteorological conditions of April 24–26.

As the Low finally moved off to eastern Canada and filled slowly, a new polar High descended over most of the eastern two-thirds of the country (fig. 11). Early on the 29th, however, the Bermuda High began to reassert itself. The southward progress of the polar air was halted and the warm air, moving northward, was lifted over the cold air mass. Precipitation fell over the Red River Basin on the 29th and 30th as a result.

May weather in North Dakota was a continuation of one of the most marked seasons-in-reverse ever experienced, while in Minnesota the spring months (March, April, and May) were the coolest in 60 years of record. Snowfall in both North Dakota and Minnesota established new records. In Minnesota the snowfall was the greatest recorded in May since 1924; in North Dakota the snowfall was twice the previous all-time high set in 1905. Precipitation in both States was above normal.

The main features of the general circulation in May to which Aubert [3] attributed the anomalous precipitation were a mean trough and center of negative 700-mb. height anomaly over the Dakotas. Again, however, a more detailed picture of the critical weather conditions is given by the day-to-day developments. As May opened, a polar High dominated the Red River Valley. Early on the 2d, however, the southerly winds of an approaching frontal system lifted warm, moist air over the cold dome, releasing heavy precipitation. Petersburg and Sharon, N. Dak., each received 8 inches of snow, and Thief River Falls, Minn., reported 6 inches. Trail, Minn., recorded 3.05 inches of precipitation on the 2d.

The frontal system had not yet passed on the morning of May 3, when another Low began to develop and deepen in eastern Utah. The Bermuda High again pushed its nose over the Southeast, retarding the southward push of the polar air mass. Precipitation started again on the 4th, and continued through the 6th as the circulation intensified with the rapid deepening of the Low. Just as the Low appeared to be moving out of the range of influence, and another polar High started to descend from the north, a

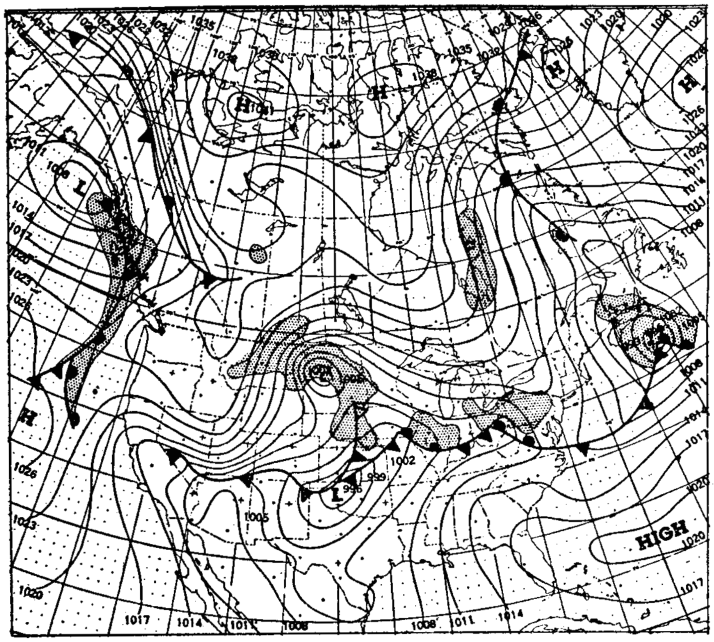

FIGURE 9.—Surface weather map for 0630 CST, April 24, 1950. Shading indicates areas of active precipitation.

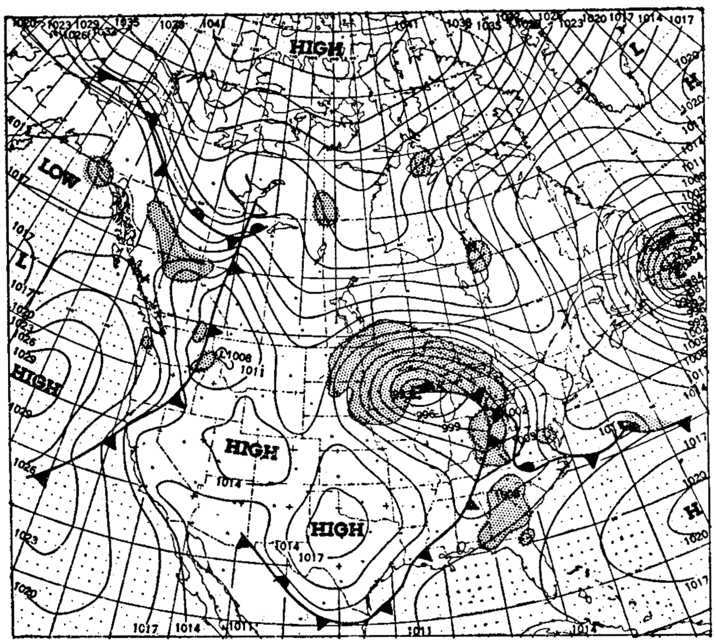

FIGURE 10.—Surface weather map for 1230 CST, April 25, 1950.

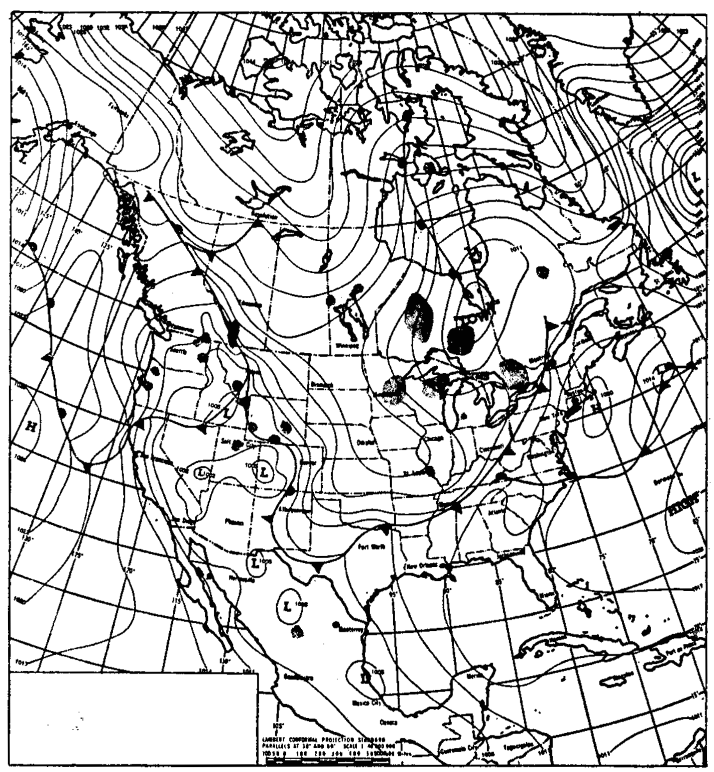

FIGURE 11.—Surface weather map for 1230 CST, April 27, 1950.

new Low started to develop in Utah. The weather of May 8–9 was a repetition of the storm of May 4–6, with many stations reporting more than an inch of precipitation in the 2 days. During the first 9 days of May many stations recorded more than 3 inches of precipitation; Sharon, N. Dak., and Trail, Minn., each reported more than 5 inches.

The Pacific High advanced into the United States behind the eastward moving Low and on May 10 extended as far as the Red River Valley. It dominated the circulation over the Basin until early afternoon of the 11th, when a Canadian High moved down over most of the Red River of the North. Then, as a frontal system passed to the east of the Basin on the 13th, the Pacific High pressed eastward over the area for a brief period.

On the 15th, polar air once more invaded the Red River Valley, and temperatures which had soared briefly sank again. Polar air remained over the Basin until the morning of the 18th, when an active Pacific front approached (fig. 12). A strong flow from the south aloft over the Red River area at this time indicated that warm air was overrunning the cold. Many stations in the region reported more than an inch of precipitation during the short period between the front's approach and passage.

Very little precipitation occurred during the remaining part of May, as the Valley was dominated first by the Pacific High, then by the polar High from Canada. On the last day of the month polar air again invaded the Red River Valley.

The troughs and ridges in the general circulation pattern of June were located slightly west of those for the preceding month, resulting in a corresponding shift in surface temperature anomalies. (See Aubert [4].) Although not so simply related to the general circulation, there were also changes in precipitation anomaly patterns. Precipitation in June was slightly above normal in northern Minnesota, although in eastern North Dakota precipitation averaged a little below normal. The record-breaking spring flood in the lower Red River of the North continued in the month of June.

On June 2, a cold front from Canada moved southeastward across the North Dakota-Minnesota region with a great High behind it. The High settled in the Great Basin and controlled the circulation of the major part of the country through the 5th.

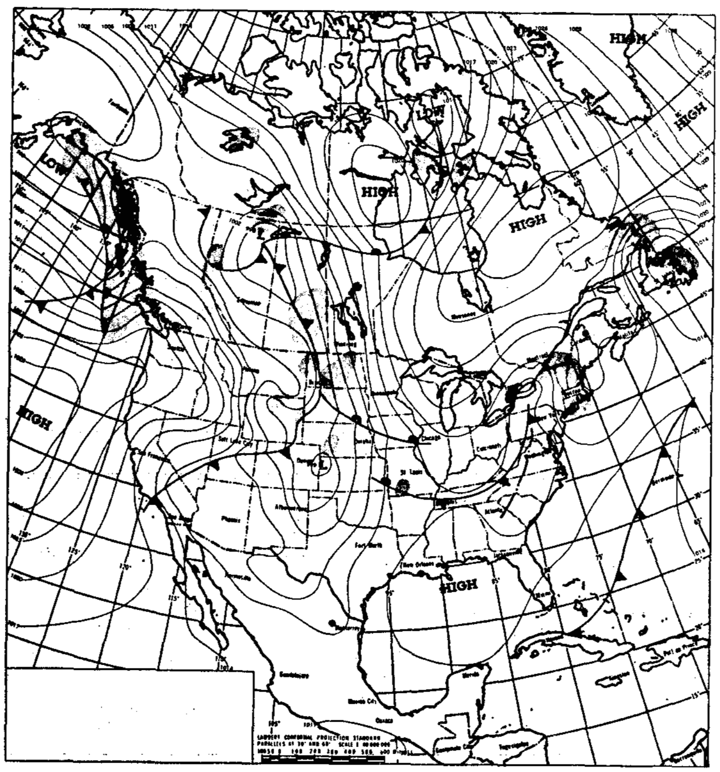

FIGURE 12.—Surface weather map for 1230 CST, May 18, 1950.

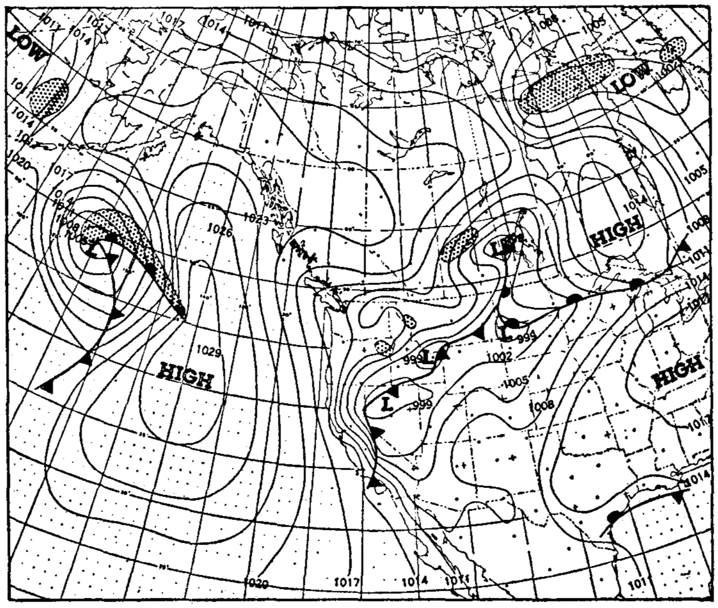

FIGURE 13.—Surface weather map for 0930 CST, June 6, 1950.

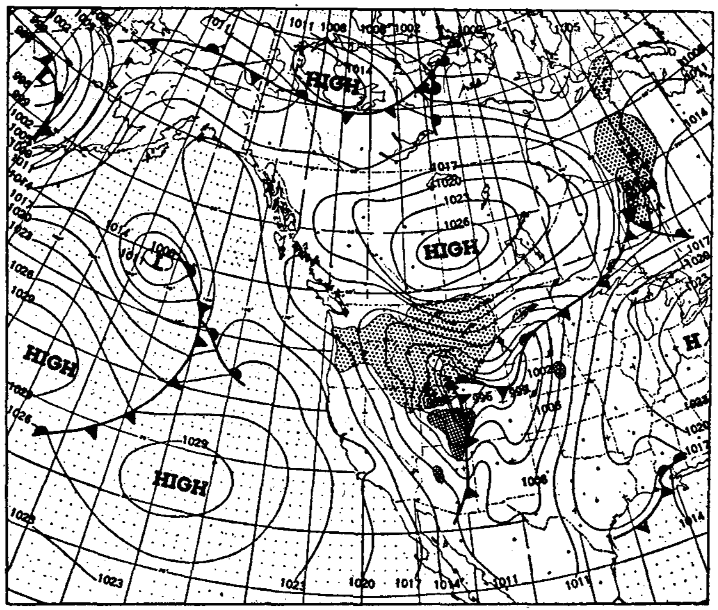

FIGURE 14.—Surface weather map for 0930 CST, June 7, 1950.

On the 6th, a strong frontal system approached the Red River Basin from the west. The front lay in a low pressure trough that extended southwestward over the Plateau, where a Low was developing over the Nevada-Idaho-Utah area. (See fig. 13.) The Low resulted in the lowest pressure on record for June for points in Nevada and Utah (see O'Connor and Norton [5]), and on the 7th its strong circulation pulled warm, moist air up from the south and lifted it over the cold dense air that had invaded the Valley of the Red River of the North (fig. 14). Many stations on the North Dakota side of the Basin received more than half an inch of rain as a result of this activity.

The Low traveled north-northeastward at a slow pace, releasing precipitation intermittently over the River Basin until the 10th. A polar High replaced the Low and dominated the circulation of the north-central part of the country through the morning of the 12th. The pressure field was very flat from the 12th through the 14th—winds were light, skies comparatively clear, and temperatures rose well above the average.

The passage of a new frontal system from the west pulled a Canadian polar front down over the Basin on the 16th. Precipitation occurred behind the front with at least six stations reporting 0.80 inch, while Sharon, N. Dak., reported 1.25 inches. The Canadian High which moved down behind the polar front dominated the circulation for 2 days, after which an extension of the Pacific High became the major influence.

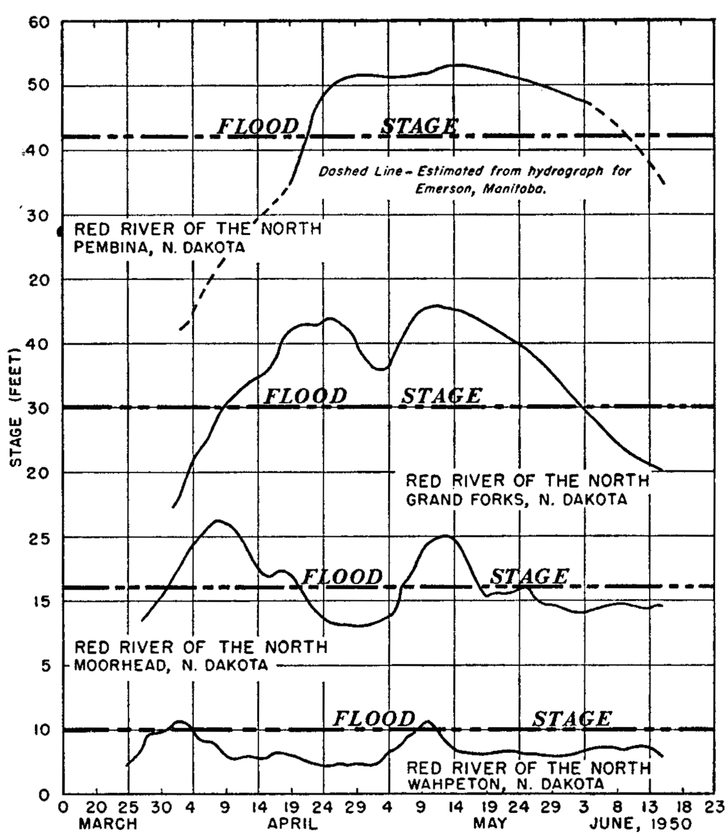

FIGURE 15.—Hydrographs at selected stations, March 24–June 15, 1950.

On June 21, a frontal system from the Pacific lay through central Montana, its Low north of the Canadian border. The frontal system moved eastward slowly while the Low in south-central Canada deepened rapidly. The Pacific cold front swept past the Red River Basin area late on the 22d, and on the 23d the intense cyclonic circulation pulled a polar front from Canada down across the North Dakota-Minnesota region.

The Low in Canada now moved rapidly northeastward, but low pressure started to develop in the Great Basin. The strong cyclonic circulation halted the front just past the River Basin area and pulled warm air laden with moisture up from the south. Precipitation resulted at many stations but much greater amounts were reported on the following day as the Great Basin Low deepened and moved rapidly northeastward. The combination of strong overrunning and sharp cyclonic turning resulted in such rainfall totals as 6 inches at the Fosston Power Plant, Minn.; 6.50 inches at Leonard, Minn.; and 4.10 inches at Mahnomen, Minn.

The passage of this Low brought an extension of the Pacific High deep into the United States where it governed the weather until the passage of a minor polar front on the 27th. The High which followed behind the front controlled the weather of the Red River of the North until the end of the month.

FLOOD OF 1950

The preceding discussion of meteorological conditions shows that the record flooding of the Red River of the North during the spring of 1950 was due to a combination of several factors, namely, heavy snowfall accumulation during the winter, late break-up or prolonged cold weather in the spring, and moderate to heavy precipitation near the time of break-up.

Flooding began along the Red River of the North at Wahpeton, N. Dak., and Fargo-Moorhead on March 31, spreading downstream to Grand Forks, N. Dak., by April 10 (see fig. 15). It reached a crest of 11.92 feet at Wahpeton, N. Dak., on April 2, slightly higher than the 1947 flood but considerably lower than the 1943 and 1897 floods. (Table 1 gives a résumé of the duration of the

TABLE 1.—*Duration and crest stages of 1950 flood of the Red River of the North*

Station	Dates above flood stage 1950		Duration of flood (days)	Flood stage (feet)	Crest date	Crest stage (feet)
	From—	To—				
Wahpeton, N. Dak.	Mar. 31	Apr. 4	5	10	Apr. 3	11.9
	May 9	May 11	3		May 10	11.9
Moorhead, Minn.	Mar. 31	Apr. 20	21	17	Apr. 8	27.2
	May 6	May 18	13		May 13	24.9
Grand Forks, N. Dak.	Apr. 7	June 4	59	30	Apr. 25	43.9
					May 12	45.8
Pembina, N. Dak.	Apr. 21	*June 10	51	42	May 1	51.7
					May 14	52.9

*Interpolated from hydrograph for Emerson, Manitoba.

TABLE 2.—*Comparative crest stage data of major floods of the Red River of the North*

Station	Flood stage (feet)	1897		1916		1920		1943		1947		1948		1950		Highest of record	
		Stage (feet)	Date	Stage (feet)	Date	Stage (feet)	Date	Stage (feet)	Date	Stage (feet)	Date	Stage (feet)	Date	Stage (feet)	Date	Stage (feet)	Date
Wahpeton, N. Dak.	10	†19.0	4/—/1897	------	--------	------	--------	*14.75	4/2/43	11.9	4/12/47	8.6	4/6/48	11.9	4/3/50 5/10/50	†19.0	April —, 1897.
Moorhead, Minn.	17	†40.1	4/7/1897	31.2	4/6/16	23.6	3/28/20	34.3	4/7/43	28.9	4/15/47	18.0	4/10/48	27.2	4/8/50	†40.1	April 7, 1897.
Grand Forks, N. Dak.	30	50.2	4/10/1897	41.0	4/17/16	41.0	3/29/20	38.2	4/12/43	40.7	4/22/47	41.7	4/16/48	43.9 45.8	4/25/50 5/12–13/50	50.2	April 10, 1897.
Drayton, N. Dak.	------	#41	4/—/1897	------	--------	------	--------	33.7	4/17–19/43	33.1	4/28/47	40.05	4/22/48	40.9 41.6	4/26/50 5/12/50	41.6	May 12, 1950.
Pembina, N. Dak.	42	------	--------	------	--------	------	--------	------	--------	------	--------	**48.5	4/27/48	51.7 52.9	5/1/50 5/14/50	52.9	May 14, 1950.
Emerson, Manitoba.	------	‡791.2	4/—/1897	785.16	4/24/16	------	--------	776.97	4/20–21/43	775.50	5/1/47	787.41	4/27/48	790.6 791.7	4/30/50 5/16–17/50	791.7	May 16–17, 1950.

† Prior to gage records.
*Highwater mark.
#From marks furnished by local residents.
**Estimated from data for Emerson, Manitoba.
‡Above mean sea level.

1950 flood and height of crests on the Red River of the North and table 2 gives comparative crest stage data of all major floods on the river.) The crest moved downstream about 14 miles per day in the reach above Moorhead, Minn., reaching Fargo-Moorhead on April 8 at a stage of 27.2 feet, 1.7 feet lower than in the flood of 1947 and considerably lower than the record flood of 1897. In the reach between Moorhead, Minn. and Grand Forks, N. Dak., the crest movement slowed down to less than 10 miles per day reaching Grand Forks, N. Dak., on April 25 at a stage of 43.9 feet, the highest level since 1897. Red Lake River, a tributary of the Red on the Minnesota side above Grand Forks, reached a crest of 24 feet at Crookston, Minn., on April 23. Here the dikes were overtopped causing water to flow across .low areas of the city. Approximately 75 city blocks of the residential area of Crookston were inundated and about 150 families evacuated. The flood moved downstream to the international boundary by the end of April, reaching a stage of 51.7 feet at Pembina, N. Dak., the highest stage in the history of the station.

While the first crest was reaching Pembina, N. Dak., a second rise was developing in the reach between Moorhead, Minn., and the confluence of the Bois des Sioux and Ottertail Rivers from the steady rains and additional snowfall during the first few days of May. By May 8, 2 to 3 inches of additional moisture had accumulated. The maximum temperatures during the first 7 days of the month ranged from 40° to 50° F. over the southern portion of the basin; by May 11, a high of 70° F. was recorded.

The runoff was particularly heavy from all of the tributaries in Minnesota which flow into the Red of the North. Flooding was extremely severe along the Red Lake River at Crookston, Minn., with the crests on May 7 (25.3 feet) and May 10 (24.8 feet) higher than the first crest of 24.0 feet on April 23. The crests along the main stem of the Red of the North from Grand Forks to Pembina, N. Dak., were from 1 to 2 feet higher than in April. The river receded only 0.7 foot at Pembina, N. Dak., during the first 6 days of May before beginning its second rise to a record crest of 52.9 feet between the 12th and 14th. The flooded areas were reported up to 30 miles wide in places near Pembina and generally around 10 miles in width from Drayton, N. Dak., northward.

At least nine persons lost their lives by drowning. Heavy damage resulted to highways and bridges from the severe prolonged flooding. The loss of livestock and property was tremendous.

COMPARISON WITH 1897 FLOOD

Although a higher crest was reached during the flood of 1897 at Grand Forks, N. Dak., the duration of the flood of 1950 was much greater and the losses as a result of the long period of inundation were much heavier. A comparison of the hydrographs for the two floods is given in figure 16.

Further information on the flood of 1897 is provided by the following newspaper account which appeared in the *Globe* at St. Paul, Minn., on April 10, 1897:

> GRAND FORKS, N. D., April 9.—From 3 to 5 o'clock this afternoon the water receded one inch * * *. Since that time, the rise

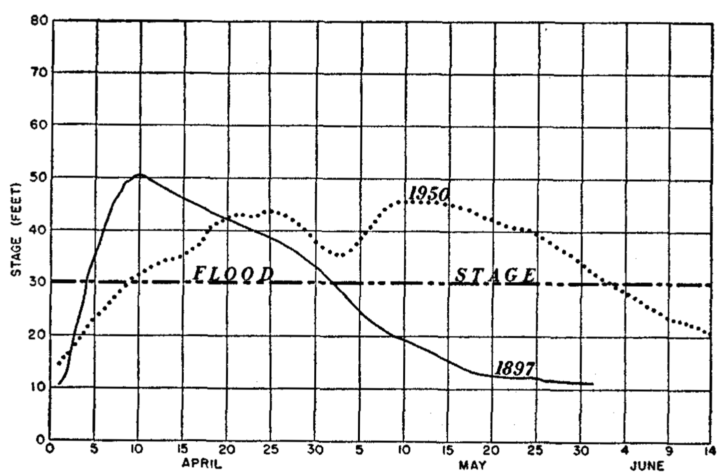

FIGURE 16.—Hydrographs at Grand Forks, N. Dak., April 1–May 31, 1897, and April 1–June 14, 1950.

amounts to more than half an inch an hour * * *. The water is almost on to Third Street, and, if the rise continues during the night, it will leave 25 blocks of paving on that street under water. So far but two and a half blocks of paving are ruined. The bridges at Minnesota Point are badly wrecked and are only kept from seeking the bottom of the river by strong cables. Both railroad bridges are wrecked somewhat, and men have been stationed on the structures for several hours shattering the larger pieces of ice with dynamite before the bridges are struck. Ice continued to run until a late hour tonight, and a big gorge is held back by the approach to the Great Northern.

A dozen reports have reached here from points below the city of whole families huddled on top of haystacks or houses, together with livestock, and with no way to get away. Barges were floated 2 miles down, and a family and a large amount of stock were saved, and it was none too soon. English Coulee has filled today and covers an area of several miles, taking a Northern Pacific bridge away. Farmers in that section are on the higher ground, and they will be unable to extricate themselves until a boat is sent down the river * * *.

Seven miles north of the city the ice has formed a gorge 2 miles long and this is probably holding much of the water, and an effort will be made to move it. Business is suspended in East Grand Forks in all but half a dozen places, and traffic between the two cities is suspended. An ice pier of one bridge went out today and the structure has been badly damaged as a result. An immense amount of damage has already been done, but, if the water continues at the present rate until morning, it will reach an enormous sum. It is impossible to get more dynamite and all that is here is being used to protect bridges, and the big gorge will be moved by boat if possible. The water is 3 feet higher than when a steamboat landed on Third Street in 1882.

BRECKENRIDGE, Minn., April 9.—Few traces of the flood are left in Wilkin county and the ground is drying rapidly. The weather this week has been very fine and some parties, whose land is high, expect to begin seeding early next week.

FARGO, N. D., April 9.—The water continues to fall steadily and the city looks much as the neighborhood of Ararat must have looked after the deluge.

PEMBINA, N. D., April 9.—Since noon yesterday the water has risen about 4.5 feet in the Red. It will reach its height about the 18th of April, judging from the level above and the conditions of the stream.

BUSTON, N. D., April 9.—The mail carriers from Belmont, 10 miles east of here, on the Red River, bring serious reports of the flood at that place. Belmont was established as a trading post by the Hudson Bay Co. The site selected is the highest ground between Lake Traverse and Winnipeg Lake, and was supposed to be above the reach of any flood. Up to this time this supposition has been correct. Today, however, all past records of high waters have been reached and passed, and the Red is steadily rising at the rate of a foot an hour. The water has reached Front Street, and is on a level with the buildings. * * * With every tributary from Lake Traverse to Grand Forks a raging torrent, and the lower river still solid, it is feared that tremendous ice gorges will be formed which would flood the entire valley with backwater.

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